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**GOVERNMENT OF INDIA**  
**MINISTRY OF TOURISM AND CIVIL AVIATION**  
(COMMISSION OF RAILWAY SAFETY)

# **RAILWAY ACCIDENT INVESTIGATION REPORT**

on  
**COLLISION**

of

**311 Up Sealdah-Muzaffarpur Fast Passenger**

with

**C 254 Down Burdwan-Howrah Local Train**

at

**Saktigarh Station**

of

**Eastern Railway**

on

**4th November, 1975**

IO002948

## SUMMARY

1. Date . . . . . 4th November, 1975
2. Time . . . . . 08.25-hours
3. Railway . . . . . Eastern
4. Gauge . . . . . 5'-6" (1676 mm)
5. Location . . . . . Saktigarh station
6. Nature of Accident . . . . . Collision
7. Trains involved . . . . . (a) 311 Up Sealdah-Muzaffarpur Fast Passenger  
(b) C.254 Down Burdwan-Howrah Local
8. Consisting of . . . . . (a) 311 Up: 12 coaches hauled by Steam Loco-  
motive No. 7266 WP.  
(b) C.254 Down: 8 EMU coaches
9. Speed . . . . . (a) 311 Up : 15 Km/h.  
(b) C.254 Down : 5 Km/h.
10. Operation . . . . . Absolute Block System
11. Number of tracks . . . . . Quadruple
12. Gradient . . . . . 1 in 2000 (rising for 311 Up)
13. Alignment . . . . . Straight with curves on approaches
14. Visibility . . . . . Good
15. Weather . . . . . Clear
16. Casualties . . . . . 85 injured : 10 grievous  
21 simple  
54 trivial
17. Cause . . . . . Due to the Driver of 311Up having entered Saktigarh  
station against the Up Main line Home signal which  
was indicating 'Danger' aspect.
18. Persons held responsible . . . . . (a) Sri Bharat Lal, Driver of 311 Up.  
(b) Sri K.D. Rauth, Leading Fireman of 311 Up.

S. K. MOJUMDER

**GOVERNMENT OF INDIA**  
**MINISTRY OF TOURISM & CIVIL AVIATION**  
**(COMMISSION OF RAILWAY SAFETY)**

No. ——— /MAC-87

From

The Additional Commissioner of Railway Safety,  
Eastern Circle,  
14, Strand Road (12th floor),  
Calcutta-1.

To

The Secretary to the Government of India,  
Ministry of Tourism & Civil Aviation,  
New Delhi.

(Through: The Commissioner of Railway Safety,  
Lucknow.)

Sir,

In accordance with Rule 4 of the Statutory Investigation into Railway Accidents Rules 1973, issued under the Ministry of Tourism & Civil Aviation's Notification No. RS. 13-T(8)/71 dated 19th April, 1973, I have the honour to report the results of my inquiry into the collision between 311 Up Sealdah-Muzaffarpur Fast Passenger and C.251 Down Burdwan-Howrah Local trains at Saktigarh station of Eastern Railway at about 08.25 hours on 4-11-75.

2. *Inspection and inquiry.*

(a) On the same day i.e. 4-11-75 I inspected the site of accident including the relevant portion of the yard, signals and interlocking installations in the East Cabin, Saktigarh in company with the Additional Chief Operating Superintendent (Safety), Chief Medical Officer and officials of the Howrah Division. Later in the afternoon I also visited the injured persons in the B. C. Hospital at Burdwan.

Visibility of the Up Main line reception signals of Saktigarh was checked from the locomotive of 7 Up Toofan Express on 6-11-75. A plan of the site of accident is enclosed as Appendix A.

(b) A Press Notification was issued on 5-11-75 inviting members of the public having knowledge of accident to give evidence at the inquiry which I commenced at Burdwan on 6-11-75 (and concluded on the 7th), or to communicate with me by post.

(c) District Magistrate, Burdwan and police authorities were duly notified. The officers of the Eastern Railway present at the inquiry were:—

1. Sri P. C. Misra, Additional Chief Operating Superintendent (Safety), Calcutta.
2. Sri A. K. Guharaja, Deputy Divisional Superintendent, Howrah.
3. Sri P. N. Roy, Senior Divisional Engineer (Howrah Burdwan Chord), Howrah.
4. Sri P. Sahu, Senior Divisional Electrical Engineer (Traction Rolling Stock), Howrah.

Other Divisional Officers were called in as and when required. The evidence of 16 witnesses was recorded and relevant exhibits filed.

NOTE:—In this report: (i) the terms 'right' & 'left', 'leading' & 'trailing' and 'front' & 'rear' where used are in reference to the direction of travel of the respective trains. (ii) '311 Up' stands for 311 Up Sealdah-Muzaffarpur Fast Passenger train and 'C.254 Down' stands for C.254 Down Burdwan-Howrah Local train.

*ident.*

(a) C.254 Down Burdwan-Howrah Local train arrived Saktigarh on Down H. B. Chord line and was proceeding by the same line towards Palla Road starting from the station at 08.24 hours. The route was set for this train and Starter signal No. 6, intermediate Starter signal No. 21 and Advanced Starter signal No. 25 for Down H. B. Chord had been taken off. When the train had just reached the diamond crossing 311 Up approaching by the Up Main line dashed against its front at about 08.25 hours.

(b) As a result of this accident the front portion of the first EMU coach No. 10106 of the Local train was smashed and its right hand side telescoped. All the wheels of both trolleys got derailed and the coach was dislodged from the trolleys. The cattle-guard was sheared off and thrown at a distance of 49 m.

On 311 Up, the smoke box of the WP locomotive was also sheared off. The leading end coupling of the 3rd coach broke and the train parted by 12.35 m. The locomotive with 2 coaches came to a stop at a distance of 98.15 m. beyond the diamond crossing.

The weather was clear and it was bright sunlit morning when the accident occurred.

#### 4. *Casualties.*

In this accident 85 persons were injured of whom 10 (including 5 railway employees) were grievously hurt, 21 had simple and the rest trivial injuries.

### II. RELIEF MEASURES.

#### 5. *Intimation.*

Information about the accident was received by Howrah Control at 08.35 hours from the Switchman, East Cabin, Saktigarh. All concerned were advised immediately thereafter.

#### 6. *Medical attention and Relief.*

The guards of both the trains started rendering first aid to the injured persons immediately after the accident. A large number of local people also collected there and carried the injured to the level crossing No. 72/A for taking them to the Health Unit at Barsul and also to the B. C. Hospital at Burdwan by trucks and other vehicles. Regular medical assistance reached the site as below:—

- |   |             |
|---|-------------|
| (i) Chief Medical Officer, Health, Bijaychand Hospital, Burdwan . . . . .   | 09.40 hours |
| (ii) Three Assistant Medical Officers of Eastern Railway, Burdwan with Accident Relief Medical Equipment on the Accident Relief Train . . . . . | 09.50 hours |
| (iii) Medical team from Memari Health Unit . . . . .  | 10.00 hours |
| (iv) Ambulance with doctors from B.C. Hospital . . . . .  | 10.15 hours |
| (v) Assistant Medical Officer, Bamangachhi . . . . .  | 10.45 hours |
| (vi) Divisional Medical Officer (General), Howrah and Workshop Medical Officer, Liluah . . . . .  | 11.45 hours |

25 injured were shifted to B. C. Hospital, Burdwan and 5 to Barsul Health Unit from where they were also shifted to B. C. Hospital. The General Manager and other Heads of Departments, Eastern Railway, attended the site and visited the patients at the B. C. Hospital in the afternoon.

#### 7. Restoration.

(a) Down Main and the Up H. B. Chord lines had not been affected and train services were resumed on these lines at 10.33 hours after verifying that there was no infringement. The rake of 311 Up was removed from the site to Saktigarh station after clearance was given by the police at 11.35 hours. Through communication by the Up Main line was resumed at 14.35 hours. The derailed EMU coach No. 10106 along with its trolleys was thrown out of the track at 21.55 hours, overhead equipment repaired and normal working resumed at 00.40 hours of 5-11-75.

(b) As a result of this accident six local trains were cancelled, five up and five down trains were diverted through UP H. B. Chord and Down Main lines which were unaffected. Ten local trains were terminated short of their destinations and some others suffered detention and were run as specials.

### III. COMPOSITION OF TRAINS AND DAMAGE

#### 8. (a) The composition of 311 Up:—

(i) Steam Locomotive No. 7265 WP — put in service in January 1950: length 23.6 m, gross weight 173.2 tonnes, fitted with speedometer with recorder in working order. Schedule II and POH of the locomotive has fallen due on 1-11-75.

(ii) The rake was composed of 12 coaches, properly marshalled. The length of the train was 289.26 m, its weight 502.7 tonnes including the locomotive. The train was fully vacuum braked and its brake power including that of the locomotive was 574.11 tonnes. It was observed after the accident that 91.6% of the brake power was available on the train as only two cylinders out of 24, were inactive.

(b) C.254 Down comprised of 8 EMU coaches of Unit Nos. 10362 and 10342, of type WAU-4 ICF (HEIL)—each having 4 coaches. The composition was as below:—

Unit No	Coach No. & Type	Seating capacity	Year built
362	10106—Driving Trailer Coach 'A', II Class . . . .	102	August 1967
	10772—Non-driving Trailer Coach 'C', II Class & Ladies	114	„
	10362—Motor Coach 'B', II Class . . . .	114	„
	11005—Driving Trailer Coach 'D', II Class & Vendor .	76	„
342	11003—Driving Trailer Coach 'D', II Class & Vendor .	76	December 1967
	10776—Non-driving Trailer Coach 'C', II Class & I Class	114	„
	10342 Motor Coach 'B', II Class . . . .	114	„
	10165—Driving Trailer Coach 'A', II Class . . . .	102	„
	Total	812	

The length of the train was 173.1 m and its weight 309.24 tonnes. It was provided with compressed air brakes, headlight and speedometer in working order.

The dates of last POH of the units were—9-3-73 for Unit No. 362 and 26-4-73 for Unit No. 342. The POH was thus overdue for 8 and 6 months respectively, on 2 year basis.

(c) The number of passengers in 311 Up was estimated at 1800 against a seating capacity of 575.

There were about 1000 passengers on C. 254 Down against its seating capacity of 812.

9. *Damage and disposition.*

(a) 311 Up.

- (i) Torpedo end of the smoke box was severed off; the smoke box face plate, cattle guard, front buffer beam and right front buffer were damaged; 4 studs of right front bye-pass valve and right front steam chest cover were broken along with damage to right valve spindle and right branch steam pipe etc.
- (ii) There was no damage to any of the coaches excepting that the screw coupling (ICF type) of the leading end of SR 4347 GS, 3rd coach from the train engine got broken and the train parted by 12.35 m.

(b) C. 254 Down.

Front of the leading coach No. 10106 was smashed and its right hand side telescoped forming a sharp bend in the coach body which was shifted from both trolleys with all their wheels derailed. 5 Nos. Schaku semi-permanent couplers between the leading four coaches as also the 2 Nos. Schaku automatic couplers between coach Nos. 11003 and 11005 were damaged. In coach No. 10772 the leading bogie bolster, centre pivot, side bearers, anchor links, windows and glass shutters were damaged along with 8 Nos. jumpers and sockets between three coaches.

There was minor damage to the permanent way.

(c) The cost of damage has been assessed as below: —

(i) Rolling stock					Rs. 2,11,765
(ii) Locomotive					Rs. 5,000
(iii) Permanent Way					Rs. 2,300
(iv) Overhead Equipment					Rs. 2,000
				Total	Rs. 2,21,065

#### IV. LOCAL CONDITIONS

10. (a) *The site.*

The accident occurred on the diamond crossing at Km. 94.18 between the Down Howrah-Burdwan Chord and Up Main line at the East end of Saktigarh station. The gradient is 1 in 2000 rising towards Saktigarh station. The alignment is more or less straight on the Down Howrah-Burdwan Chord whereas the Up Main line is on a 'S' curve of  $\frac{1}{2}^\circ$  on the Howrah approach and  $1.5^\circ$  towards the Saktigarh station, with a short straight length at the diamond crossing. In the yard the four through lines are grouped in the following order from north to south: —

Down Main,  
Down HBC,  
Up Main,  
Up HBC.

(b) Saktigarh is a 'B' class station with standard III inter-locking with two cabins one at each end worked on Absolute Block System. The adjacent stations towards Howrah are Palsit on the Main line and Palla Road on the H. B. Chord. The section is electrified with 25 KV AC supply.

(c) The station is provided with three aspect manually operated colour light signals. At the Howrah end on the Up Main line, Distant, Home and Routing Home signals are provided. The aspect of these signals are controlled as follows:—

- (i) With Routing Home Yellow—(the Starter for Up Main line red)—Home signal will assume Yellow and Distant will assume Green aspect.
- (ii) With the Routing Home Yellow—with route set from Up Main to Up H. B. C., Home signal will assume Yellow aspect and Distant Double Yellow aspect.
- (iii) With the Routing Home Yellow—with route set from Up Main to Up both Home and Distant signal will assume Green aspect.

(d) On the Down HBC line, platform Starter (with route indicator) and an Intermediate Starter are provided along with an Advanced Starter. Down HBC platform Starter backlocks mechanically as well as electrically the Intermediate Starter signal and similarly Intermediate Starter signal also backlocks mechanically and electrically the Down Advanced starter.

The Up Main line Home and Down HBC Intermediate Starter signals are controlled through the diamond crossing track circuit and these two signals lock each other. The distances of the signals relevant to this accident from the diamond crossing are indicated below:—

(i) Up Main line Distant signal	— 1077 mm east of the Diamond crossing			
(ii) Up Main line Home signal No. 33.E	— 242.32 m	„	„	„
(iii) Down HBC Starter signal No. 5E/6E	— 795 m west	„	„	„
(iv) Down HBC Intermediate Starter signal No. 21E	164.59 m	„	„	
(v) Down Advanced Starter signal No. 25E	— 104.85 m east	„	„	„

Last stop signals at both east and west ends are controlled through Block Instruments with the adjacent stations.

(e) *Speed restrictions*

The speed is restricted to 72 Km/h on the Up Main line and 96 Km/h on the Down HBC line over the diamond crossing as also the curves with inadequate superelevation on the Main line and a curve with short transition length on the HBC.

11. The kilometrage, reckoned from Howrah of stations referred to in this report are as under. There are 15 Traction Structure Posts per kilometre:—

Howrah	. . . . .	0.00 Km.
Bandel	. . . . .	39.29 „
Rasulpur	. . . . .	87.59 „
Palsit	. . . . .	91.56 „
Site of the accident	. . . . .	94.18 „
Saktigarh	. . . . .	95.20 „
Burdwan	. . . . .	106.73 „

## V. SUMMARY OF EVIDENCE

12. *Driver Sri Bharat Lal of 311 Up* stated that he signed on duty at 04.45 hours on 4.11.75 after availing 12 hours 30 minutes rest at Sealdah. He started 311 Up with engine No. 7266 WP at 05.50 hours right time. After passing Palsit he noticed the Up

Distant signal of Saktigarh indicating double yellow and the Home signal yellow which was also called out by his fireman. He therefore expected the Routing Home signal to be red and hence closed the regulator and brought the train under his control to stop short of the same. As soon as he was to pass the Home signal his fireman shouted that the signal was put back to danger. He immediately applied the vacuum brake and also saw one local train approaching. He applied his steam brake also but his engine collided with the local train on the diamond crossing. He had used his whistle vigorously and red flag was shown to stop the EMU train but it failed to do so.

In reply to questions he stated that he had found his steam as well as vacuum brakes on the engine in good condition when he examined the same at Sealdah and he had 4½ cms. of vacuum when starting. His eye-sight was tested in March '75 with glasses and he had two pairs of glasses. He had also attended Refresher Course in June '75. He had been working on Sealdah-Burdwan section for about 8 to 9 years with a gap of 2½ years when he worked on Andal-Sainthia Chord from 1973 to 15-9-75. He knew the different types of signalling used on this section viz. automatic, semi-automatic, three aspect and four aspect colour light signalling. In the three aspect signalling (as at Saktigarh) he was under the impression that if the Distant signal was green it would positively signify that he would get run through signals (which was not correct). Further, he had expected the Routing Home signal to be 'red' because this was the second signal after the double yellow Distant signal. After a lot of hesitation he indicated that the double yellow Distant signal would signify that his path would be clear upto the Starter and he would be taken on the loop.

He had not himself seen the Home signal change from yellow to red but his fireman had shouted about it and the view of the signal from his side was then obstructed by his boiler. Earlier, when he had seen the Home signal it was yellow. He started braking from a point almost opposite the Home signal. His speed at that time would be 40 Km/h. His estimation of speed at the time of collision was 10 to 12 Km/h. During the previous night he did not go out anywhere and slept in the running room, Sealdah until the morning.

13. *Leading Fireman Sri K. D. Rauth of 311 Up* generally corroborated the driver's statement. He also stated that when he noticed the Home signal turn from yellow to red, his engine was very close to the same and the distance might have been about an engine length. He also stated that when the Distant signal was green it meant that all other signals for him of that station would be green including the Starter.

Note: — His mis-conception of the signal indications was similar to that of the driver.

14. *Second Leading Fireman Sri Ram Dular Singh of 311 Up* was engaged in firing after his engine passed Palsit. He heard the other fireman calling out that the Saktigarh signal was double yellow. After passing the Distant signal he stopped firing and looking out saw the Home signal to be red. He told the driver who immediately applied the vacuum brake. On seeing another train approaching he displayed the red hand signal flag to the other train.

In reply to questions he clarified that he had seen the Home signal on his own and almost simultaneously the other fireman also shouted that the signal changed to red. The witness, however, had not seen it yellow previously.

15. *Sri Moloy Kumar Chattopadhyay of 15, Mukherjee Lane, Serampore (Hoogly)*, a passenger travelling from Serampore to Durgapur, boarded 311 Up at Bandel, in the last coach. He stated that the train had slowed down once before Rasulpur level crossing and the speed increased again. He was standing on the left side door. The train passed through Palsit at 08.24 hours on green signals. The next signal was a single yellow and the next one to it, between Up Main line and Down Chord (i.e. the Up Main Home signal of Saktigarh) was red. He saw from a distance that the engine and two coaches crossed the red signal. Some passengers who were standing on the right side door shouted 'accident' and he was thrown against another passenger by a jerk. Getting down, he saw that the first coach of C. 254 Down was derailed and tilted.

In reply to questions he stated that he had seen the Home signal when his compartment just passed the Distant signal which had been seen by him while he was short of Advanced Starter of Palsit. He had seen the Routing Home signal of Up Main line (Saktigarh) only after the accident and it was red. After taking out the wounded passengers and crossing the Main line, he had noticed the Down Advanced Starter of H. B. Chord at Saktigarh and it was showing green. During his talk with the driver of 311 Up the latter told him that he had seen the Distant signal to be double yellow and the next signal was single yellow and that is why he came ahead. No mention was made regarding the Home signal changing from yellow to red. The Motorman of C. 254 Down had told witness that he got the green signal and was proceeding ahead.

16. *Switchman Sri S. S. Paul of East Cabin Saktigarh* had taken line clear for C. 254 Down from Palla Road at 08.21 hours. The train arrived on Down HBC at 08.23 hours and after setting the route from Down H. B. Chord to Down H. B. Chord, the signals were taken off for this train. It started from Saktigarh at 08.24 hours. Line clear for 311 Up was given by him at 08.22 hours. The Train Entering Section signal was received by him at 08.24 hours. He then asked for slot from West Cabin Saktigarh for receiving 311 Up from Up Main line to Up Main line at 08.26 hours. He had not asked for the slot immediately on receipt of the Train Entering Section signal of 311 Up as he wanted that C. 254 Down should pass the diamond crossing of Saktigarh. He had asked for the slot only after giving the Train Entering Section signal of C. 254 Down at 08.25 hours to Palla Road. At the time when C. 254 Down was passing the diamond crossing and the track of the diamond crossing became red the indications for the signals on his illuminated cabin diagram for the Up Main line were as under:—

(i) Distant	Single yellow
(ii) Home	Red
(iii) Routing Home	Red.

At about 08.30 hours some people probably passengers of C. 254 Down came running to his cabin and informed him that there was an accident. He immediately advised Assistant Station Master Saktigarh and also informed Section Controller about the same for arrangement of medical vans etc. He placed lever collars on the levers for Down HBC, Up Main and Down Main lines anticipating that these lines were blocked as a result of the accident. At about 08.50 hours both guard and Motorman of C. 254 Down arrived at his cabin and the former noted down the position of levers.

In reply to questions he stated that when signals for a Down train from Down HBC to Down HBC line were taken off it was not possible to take off the signals for Up Main line to either Up Main or Up HBC. With signal levers No. 6 & 21 in pulled condition the signals for Up Main line trains cannot be taken off. To a question as to whether he had first set the route for 311 Up via the loop (Up HBC) and taken off the reception signals and later changed over to pass C. 254 Down first, the witness replied that this was not possible as *Electric 315 (Up Goods train) was occupying the Up HBC line from 08.17 hours to 09.30 hours*, thus it was not possible to obtain slot for this route and take off the signals for 311 Up. He had not seen the actual collision as the view was not very clear on account of the OHE structures and the distance. He also stated that the Distant signal (for Up Main line) would indicate double yellow when the route is set for diversion to Up H. B. Chord and the reception signals were taken off. The Up Main line Distant signal indicates green when the route is set for Main line to Main line and (a) through signals are given and also (b) when the Starter is 'On' and the reception signals are taken off. There had been no unsafe side failure during his stay at this cabin from August '74, in his duty hours.

17. *Switchman Sri Chhedi Shaw of West Cabin Saktigarh* stated that the East Cabin Saktigarh gave him slot for C. 254 Down at 08.20 hours. The train arrived on the platform by Down HBC at 08.23 hours and the out report from platform was received from East Cabin Saktigarh at 08.24 hours under the latter's Private No. 66. Thereafter the slot for 311 Up for Up Main Home signal was asked for by Switchman, Saktigarh East Cabin. Witness attempted to obtain line clear for this train from the station ahead after telling his Leverman to give the slot to the East Cabin. But before the slot was given the East Cabin Saktigarh informed him that 311 Up over-shot the signal in 'On' position. After about 10 to 12 minutes he learnt from the East Cabin that

a collision had taken place between 311 Up and C. 254 Down. To a question whether it was possible for him to give slot for 311 Up by the HBC line he replied in the negative as goods train No. Electric 315 Up was standing on the Up HBC line from 08.17 hours and continued there upto 09.28 hours due to hot axle. He further clarified that he had recorded the time for giving the slot for 311 Up as 08.24 hours and was just going to pull the slot lever when he was again told that 311 Up had overshoot the signal. Hence the slot lever was not pulled at all.

18. *Switchman Sri G. C. Talapatra of Palla Road West Cabin* stated that he had granted the line clear for C. 254 Down at 08.21 hours and received the out report from Saktigarh East Cabin at 08.25 hours (which corroborated with the statement of the Switchman East Cabin Saktigarh).

19. *Guard Sri G. C. Bhattacharjee of C. 254 Down* stated that his train was received on Down HBC platform of Saktigarh at 08.23½ hours and left at 08.24 hours. The collision took place at 08.25½ hours. He rendered first aid to the 6 or 7 injured passengers. A large number of local people collected there and carried the injured passengers to the level crossing gate No. 72A to remove them for medical aid to Burdwan Hospital.

In reply to questions he stated that he found Lever Nos. 6, 14, 17, 18, 19, 21 & 25 in pulled condition in the East Cabin, Saktigarh when he went there after the accident at 08.45 hours. While starting his train from Saktigarh he found the aspect of the Starter signal (No. 6) for his train to be green. When his train was passing the end of the platform he found the Intermediate Starter signal (No. 21) also green.

20. *Assistant Station Master Sri S. K. Kundu of Saktigarh* stated that there was no talk between him and the East Cabin Saktigarh or with the Section Controller at any stage regarding receiving of 311 Up first prior to the despatch of C. 254 Down from Saktigarh. Further, the Switchman in the cabin arranged for the priorities of reception independently.

21. *Motorman Sri G. R. Dutta of C. 254 Down* signed on at 07.10 hours on 4-11-75 after having 6 hours out-station rest. He reached Saktigarh at 08.23½ hours. The Starter was green along with the Intermediate Starter. He started at 08.24 hours, while near the Intermediate Starter he saw the 500 m warning board for neutral section and prepared for tripping. At that time he saw the engine of 311 Up approaching by the Up Main line in the rear of Home signal for that line. First he thought it to be stationary but finding it to be coming ahead he immediately applied emergency brake and also released the deadman's handle and sounded the hooter. Seeing that the other train was still moving he lifted the seat, opened the door and jumped off when the other train was quite close. His train had slowed down to about 4-5 Km/h at that time. Moments later the train collided. On recovering from the shock he took out, with the help of other passengers, Md. Abid Khan, a Fitter under Electric Foreman/TRS who was travelling in his cab, through the front window which was broken and the bars had fallen off. He and the guard then went to the cabin where he informed Control to stop all movements till the infringements were checked.

In reply to questions he stated that his train had gained a speed of about 65 Km/h near the Intermediate Starter. The efficiency of his brakes was good and the braking distance would be less than 700 ft. which was necessary for a speed of 72 Km/h. He did not observe anyone showing red flag from 311 Up nor did he hear the whistle of the engine. The Fitter under Electric Foreman/TRS who was travelling in his cab usually had a Cab Pass which however was not checked by him. When he arrived at Saktigarh platform the aspect of his Starter was green and it continued to be green till he started.

22. *Assistant Station Master Sri Satya Hari Palit of Palsit* stated that he asked for and received line clear for 311 Up at 08.21 hours from Saktigarh East Cabin on 4-11-75, the train passed through Palsit at 08.23 hours and the out report for the same was given to Saktigarh East Cabin at 08.23 hours.

23. *Guard Sri M. R. Pathak of 311 Up* stated that after a few minutes of his train running through Palsit at 08.22 hours he was preparing for exchanging signals with Saktigarh East Cabin and looking out he found the Home signal in danger aspect. The signal was about 1000 ft. from him at that time and the engine had not crossed it till

then. Finding no reduction in speed he immediately applied the vacuum brake in his van. The speed of the train reduced considerably and the train came to a stop with a jerk.

In reply to questions he stated that his train was travelling at about 70-72 Km/h after passing Palsit and he did not feel any reduction in speed while approaching the Home signal of Saktigarh. After the accident, on being pointed out by the Station Master, he had observed the Advanced Starter for the Down Local train to be indicating green. He confirmed that he had noticed the Up Main Home signal of Saktigarh indicating danger aspect and he had also recorded this fact after the accident in his Rough Journal Book. He had noted the time when his train stopped after the accident and it was 08.26 hours. The booked speed of his train was 75 Km/h and the weather was clear and the visibility good. He had tallied his watch with the driver and the latter appeared to be fit and sober.

## VI. OBSERVATIONS & TESTS

24. The visibility of the Up Main line Distant and Home signals of Saktigarh was checked at about 11.10 hours from the locomotive of 7 Up on 6-11-75. It was observed that the Home signal was clearly visible from a distance of about 840 metres and the Distant signal from 850 metres. The alignment being straight there was no obstruction to the driver's view.

25. As regards integrity of the signals, there was no reason to suspect any malfunctioning. The driver of 311 Up, however, had stated that the Up Main line Distant signal was showing double yellow and the corresponding Home signal yellow which changed to red when he was near the same. Detailed tests including cable insulation tests were carried out at my instance on 5-11-75 by the Assistant Signal and Telecommunication Engineer. These tests showed that the signalling and interlocking equipment were functioning properly.

26. The following tests were also carried out to see if it was possible for the Switchman, East Cabin, Saktigarh to have put back to 'On' the reception signals taken off for 311 Up first and then to take off the Starter signals for C. 254 Down and cause the accident:--

- (i) A train similar to 311 Up with WP Engine but having one extra coach was selected for this test. When it approached Saktigarh at 45-50 Km/h both vacuum and steam brakes were applied at about 30 m in the rear of the Up Home signal. The time taken for the train to come to a dead stop after brake application, which occurred when the engine was about 18 m beyond the diamond crossing, was observed to be 26 seconds only.
- (ii) An EMU train (No. C. 254 of 7-11-75) starting from Down HBC platform took 1 minute 37 seconds from start to a stop at about 30 m short of the diamond crossing after attaining a speed of 65 Km/h.

## VII. DISCUSSION

27. *Time of the accident.*

According to the Guard of C. 254 Down the accident took place at 08.25½ hours. It was observed during the second test mentioned in para 26 that an EMU train would take 1 minute 37 seconds to come to a stop near the diamond crossing after normal starting from the platform which also indicates the same time of accident, C. 254 Down having started from Saktigarh at 08.24 hours. Further 311 Up ran through Palsit at 08.23 hours as recorded by the Assistant Station Master of that station. The distance from Palsit to the site of accident being 2.62 Kms. and its booked speed being 75 Km/h it would also come to a stop near the site of collision at approximately the same time. The accident may therefore be taken to have occurred at 08.25½ hours (or 08.25 hours rounding off to the nearest minute).

28. *Speed at collision.*

The Motorman of C. 254 Down has stated that his train had slowed down to about 4 to 5 Km/h when he jumped off and the collision took place moments thereafter. His speed therefore appears to have been about 5 Km/h.

As regards 311 Up it is difficult to assess its speed at collision. The driver has stated that his speed near the Home signal was about 40 Km/h and his estimation of the same at the time of collision was 10 to 12 Km/h. The fact that his engine came to a stop after parting, at a distance of 98.15 m from the point of collision which took place almost at the centre line of the diamond crossing indicates that his speed was slightly higher than his estimate and would be in the neighbourhood of 15 Km/h.

29. *Cause of accident.*

From the evidence available it is established that the route was set for the passage of C. 254 Down to Down H. B. Chord and its signals had been taken off. The Advanced Starter for this route was found to be green after the accident by a passenger also. Both the Motorman and the Guard of this train had noticed the Starter and the Intermediate Starter indicating green. The lever position in the East Cabin Saktigarh also indicated that the above route was set for C. 254 Down and the despatch signals had been taken off. Under this condition the interlocking would not permit the reception signals for 311 Up being taken off.

The driver of 311 Up had stated that he observed Up Main line Distant signal to be double yellow and the Home signal single yellow which changed to red when he was quite close to the same. According to the signalling arrangements the Distant signal would assume double yellow aspect only when reception is arranged from Up Main line to Up H. B. Chord through the crossover. There was no possibility of this route having been set and the signals taken off as Electric 315 Up goods train had been occupying the Up H. B. Chord line at Saktigarh from 08.17 to about 09.28/30 hours, which would prevent the West Cabin from giving slot for the Up Main line Home signal for that line due to track circuit. Since interlocking was functioning normally there was, thus, no possibility of the Up Main line Distant signal to indicate double yellow and the driver's version about the same has to be discounted.

The possibility of the Up Main line Home signal having been yellow and its change over to red indicating that the reception of 311 Up had been arranged first and later changed over for starting C. 254 Down first has also been examined. Detailed tests carried out vide para 25 established that there was no malfunctioning of the signals and interlocking arrangements. As regards changing the aspect of signals by the Switchman himself, the tests detailed in para 26 indicate that 311 Up would reach the diamond crossing in 26 seconds from the Up Main line Home signal whereas C. 254 Down would have taken 1 minute 37 seconds from the platform to stop near the diamond crossing ignoring the time required by the Switchman to throw back the Up Main line Home and thereafter pull the levers of 3 starting signals for C. 254 Down. It would be seen, therefore, that if the reception arrangement had been changed as implied by the driver of 311 Up while he was near the Home signal he would have gone beyond the diamond crossing before C. 254 Down reached the site of collision and if he stopped, C. 254 Down would have collided with some of the coaches of 311 Up and not with the locomotive as actually happened. There was no contact of the EMU train with any coach of 311 Up and the impact took place only with the front of its locomotive. In the circumstances the driver's version regarding changing of the aspect of the Up Main line Home signal from yellow to red has also to be discounted. It appears that his Leading Fireman observed red Home signal only when his locomotive was close to the same and hence the driver failed to stop in time. The accident was, therefore, caused by the driver's failure to observe the 'danger' aspect of the Up Main line Home signal in time and entering Saktigarh against signals.

30. *Could the accident have been averted?*

The Up Main line cuts across the Down HBC line at this station and there is no isolation. There is also no speed restriction of 50 Km/h as required under General Rule 90(c). The EMU Local C. 254 Down after starting from the platform had attained a speed of 65 Km/h by the time it reached the Intermediate Starter. Had there been a speed restriction of 50 Km/h probably it would have been possible for this train to stop short of the diamond crossing and avert the accident. The Motorman was, however, vigilant and brought his train almost to a halt but could not stop short of the diamond crossing. Being almost on the same alignment it was difficult for him to distinguish whether 311 Up had stopped at the Up Main Home signal or was continuing its journey specially because he was proceeding on clear signals and the other train was

expected to stop. When he realised that 311 Up was approaching, it was rather too late to avert the collision. I, therefore, do not hold the Motorman responsible for failing to avert the accident.

### VIII. CONCLUSION

31. On full consideration of all the facts, material and circumstantial evidence I have reached the conclusion that the collision between 311 Up Sealdah-Muzaffarpur Fast Passenger and C. 254 Down Burdwan-Howrah Local trains at Saktigarh station of the Eastern Railway at 08.25 hours on 4th November, 1975 was caused by the driver of 311 Up having entered Saktigarh station against the Up Main Line Home signal which was indicating 'danger' aspect.

32. *Responsibility.*

(a) The primary responsibility for this accident lies with Sri Bharat Lal, driver of 311 Up. He contravened the provision of General Rules 76, 78 and 122.

(b) Leading Fireman Sri K. D. Rauth is also responsible for non-observance of G. R. 122 and S. R. 122.

The above rules are extracted in Annexure I.

33. *Service particulars.*

(a) Sri Bharat Lal aged 55½ years was appointed as Second Fireman on 11-6-45 and was promoted as driver in Grade 'B' from 23-3-73. He had passed last Refresher Course from Jamalpur Training School on 17-6-75. His increment was stopped on two occasions for disregarding signals in November and December 1960. He had once been reduced temporarily to Shunter for lead plug fusion in 1962 and his increment was stopped on another occasion for engine failure. It may, however, be noted that he had all these punishments more than 10 years back and there is nothing against him since then.

(b) Sri K. D. Rauth aged 37½ years was appointed on 13-11-74 as Cleaner and promoted to Leading Fireman on 24-8-75. He has read upto Class VIII. He had once been penalised by stoppage of Passes & PTOs in 1969 for leaving his work without any information.

34. *Relief measures.*

With reference to Chapter II of the report, the relief measures were satisfactory.

### IX. REMARKS & RECOMMENDATIONS

35. This is one of the accidents which could have been averted if the Automatic Warning System was in existence. Although the provision of this system has been sanctioned by the Board for the Howrah-Burdwan Chord and Main lines it has not yet been introduced fully and the work on Main line section has not been taken in hand as yet. It is recommended that the provision of Automatic Warning System on all the Suburban sections must be given the topmost priority and the progress of the work expedited to the maximum extent possible.

36. Junctions of Main running lines are normally not provided with isolations as provision of trap siding on Main line is not permitted. Where, however, such isolations are not provided it is essential to restrict the speed over both the lines to 50 Km/h according to G. R. 90(c). The practice followed on this railway does not appear to be uniform as at stations like Saktigarh, Belanagar where running lines cross each other without any isolation no speed restriction has been introduced on that account whereas at Sitarampur station under identical conditions a speed restriction of 48 Km/h is existing. This anomaly may have been caused on account of para 147(c) of the Indian Railways Signal Engineering Manual. It is recommended that at such locations where isolation has not been provided the speed restriction, as required under G. R. 90(c) must be introduced without fail. The Board is also requested to remove the anomaly caused by para 147(c)(i) of the Indian Railways Signal Engineering Manual.

37. The footplate crew of 311 Up, specially the driver, was not clear regarding the meaning of different indications of signals in Multi aspect colour light signalling. Their concept being based on two aspect semaphore signalling system, they have a wrong impression that when the Distant signal is green they would be getting run through signals for that station. Intensive drive should be undertaken to educate them regarding the significance of different indications of signals in the Multi aspect colour light signalling territories so that they have a correct appreciation of the same and avert accidents.

38. The two EMU units on C. 254 Down had their last POH on 9-3-73 for unit No. 362 and 26-4-73 for unit No. 342. They are thus overdue POH by 8 & 6 months respectively. In another accident inquired into recently it was also observed that EMU units were overdue POH by almost identical periods. The date of any special examination if done within three months after the expiry of the return date as required in Rule 2.2.4 of I.R.C.A. Conference Rules IV—1972 edition, is also not recorded on these units. During the normal bogie lifting, the coach structure, portions of which particularly the sole bar area suffer corrosion, is not examined and this portion often collapses during collision, involving danger to passengers. The Railway must, therefore, ensure that the EMU coaches are given POH on their due dates.

Yours faithfully,

(Sd.)

S. K. MOJUMDER

*Additional Commissioner of Railway Safety,  
Eastern Circle,  
Calcutta.*



Calcutta.

Dated: 30-1-76

## RAILWAY BOARD'S REMARKS ON VARIOUS PARAS OF THE REPORT

### Para 35 of the report

The work of providing Automatic Warning System on the Howrah-Burdwan section (both H. B. Chord and main line) is being progressed on priority basis.

### Para 36 of the report

Attention is invited to the title of G. R. 90, which reads as "Limit of speed over facing points". A reading of this G. R. 90 would indicate that it prescribes speed limits at facing points within station yard where there are adjacent lines. Consequently, different speed limits are prescribed when the main line is isolated and not isolated from the adjacent connected lines so that when a train is running through, vehicles stabled on adjacent lines may not roll down and foul the line over which the train is run through.

'Running junctions' do not come under the purview of G. R. 90(c), and hence the intersecting lines need not be isolated from one another as the train waiting at the junction will normally have its engine in front and there is no possibility of any loose vehicle running into the fouling the junction. Moreover, 'running junctions' are protected by full complement of signals located at adequate distances.

In the absence of any General Rule restricting the speed of a train at 'running junction', only provision of para 147(c) of the Signal Engineering Manual is applicable, which clearly indicates that there is no need for speed restriction at 'running junctions' provided with full complements of signals. It does not appear to be necessary to impose any speed restriction on the 'running junction' at Saktigarh in view of the provision of full complement of signals.

### Para 37 of the report

The Railway Administration has explained that the running staff are sent to training schools on a number of occasions such as promotion from Fireman to Shunter, Shunter to Driver, and 1st Class Goods Driver, and refresher courses at periodical intervals of 5 years upto the age of 50. During these courses, exhaustive training is imparted on the various types of signals and their concepts. Running staff are also counselled and monitored by officers and supervisors and exposed to safety camps. CRS has also noted that the Railway administration has issued suitable instructions to organise extensive monitoring and counselling of the running staff. Action has also been initiated to bring out attractive posters indicating the significance of different aspects of signals for distribution amongst the running staff.

### Para 38 of the report

A review of available workshop capacity and POH arisings of coaching stock till the end of 7th Five Year Plan has recently been undertaken. It has been decided to achieve self-sufficiency on a regional basis. A new Workshop has been planned for the Eastern region in the 1977-78 Works programme. Other new Workshops for coaching POH will be planned in the subsequent works programmes commensurate with the requirements of additional capacity. The subject of additional POH facilities required for increased rolling stock holdings is receiving constant attention of the Ministry of Railways.

The relevant rules are extracted below:—

“G. R. 76. *Driver to obey signals and to be vigilant and cautious*:—(a) The Driver shall pay immediate attention to and obey every signal whether the cause of the signal being shown is known to him or not.

(b) He shall not, however, trust entirely to signals but always be vigilant and cautious.”

“G. R. 78. *Duties of Driver when Outer, Home or Routing signal is ‘On’ or defective*.—(a) The Driver of a train shall not pass an Outer, a Home or a Routing signal that refers to him, when it is ‘On’ or defective, unless—

- (i) he has, at a previous station, received notice in writing specifying that the signal is out of order and unless he also receives a ‘proceed’ hand signal by a railway servant in uniform at the foot of such signal; or
- (ii) after coming to a stand, he is either given written authority from the Station Master to proceed past such signal or is authorised by a Calling-on signal in the ‘Off’ position or is authorised by the Station Master over the signal post telephone in accordance with special instructions.

(b) The Driver of train while passing an Outer, a Home or a Routing signal, when it is ‘On’ or defective, shall ensure that the speed of his train does not exceed 15 Kms. per hour.”

“G. R. 122  
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“S. R. 122. When passing through a station, the Fireman/Driver’s Assistant/Assistant Driver of Steam/Diesel/Electric locos shall assist the Driver for sighting the correct aspect of the approach and departure signals pertaining to the train and call out the aspect of each signal to the Driver who, after checking the aspect, shall also repeat the same.

Where two or more lines diverge or converge, the route indicated by the signal such as, ‘Loop Home,’ ‘Loop Starter,’ ‘Main Home,’ ‘Main Starter,’ etc. shall also be called out and repeated. ... ..”